Lesson 45 - Introduction To Fasting

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1. What Is Fasting?

There are many definitions of fasting and there are many misunderstandings about fasting.

The word "fasting" is derived from the Anglo Saxon language and means "firm" or "fixed," the word being "faest," and during these early periods the practice of abstaining from food during certain periods was referred to as fasting. Therefore, it was related to a person firmly withholding food.

From our standpoint, fasting refers to abstinence from food in the total sense. Commonly, and in many religious organizations, fasting refers to abstinence from certain prescribed foods.

In certain quarters, the common language usage is to refer to certain specific foods, and a person may be said to be on a "juice fast" when they are subsisting on juices. In actual fact, these are juice diets.

Fasting in the broad sense may be regarded as negative nutrition compelling the organism to subsist on nourishment that it has stored within itself.

For the purposes of this course, fasting means the voluntary and complete abstinence from all food except water while nutritional reserves remain adequate to sustain life and normal function.

1.1 Fasting vs. Starving

It is important also to make a clear distinction between fasting and starving.

The word "starve" is also derived from the old English word "steorfan" which means "pestilence," "mortality." Therefore, to starve is to die, and this is what will quickly happen if nutritional reserves are exhausted.

Therefore, we must fully understand that fasting represents a process of utilizing nutritional reserves while abstaining from eating. Conversely, starvation represents a state where the nutritional reserves have been exhausted and the organism's vital tissues are rapidly being broken down.

2. History Of Fasting

Fasting has a long history, but much of it is associated with religion. There are over 30 references to fasting in the Bible. There are numerous references to fasting among non-Christian religious groups. As a religious observance fasting has been practiced for centuries, and it undoubtedly, as a practice, preceded recorded history.

It is evident from records that exist that abstinence, either partial or complete, from all food or from certain foods, existed in Assyria, Babylon, China, Greece, India, Palestine, Persia and Rome, and the records from the early civilizations of Mesopotamia and Egypt indicate that fasting of some type was an important part of religious practice. However, I would refer the reader to other literature to investigate this aspect of fasting because here we are more properly concerned with the utilization of fasting as a means of recovering and preserving health.

We are interested in therapeutic fasting and I use the word "therapeutic" in the original sense and this is important.

"Therapeutic" is derived from the Greek language and means "to attend," "to minister," "to tend the sick." It does not necessarily mean to employ a range of treatments called therapies.

So our preoccupation with fasting relates to the application of fasting as a health measure.

Aside from religious fasting it has also been associated with magic, with specific disciplinary practices, with exhibitions for the sake of notoriety, and also in the twentieth century especially with hunger strikes. The recent incident involving Bobby Sands and his comrades in Northern Ireland has given a lot of publicity to the subject. However, these and other uses of fasting have little to do with our consideration of fasting as a scientific procedure involved in the care of the well and the sick.

During the last hundred years or so, the subject of fasting has undergone close experimental and scientific scrutiny which was probably initiated by the famous physiologist, Dr. Francis Gano Benedict of the Carnegie Institute in Massachusetts. His book, *The Study of Prolonged Fasting*, is well worth close perusal today.

In more recent times, Dr. G.F. Cahill has made enormous strides in our understanding of the physiological and biochemical mechanisms of fasting. It has been only over the last 150 years or so since the development of the hygienic system that fasting has been employed as a serious and satisfactory health procedure, and the work of these remarkable pioneers has added greatly to our understanding of the clinical aspects of fasting and the remarkable benefits that are available to the sick through its employment.

A brief review of some of the giants of hygienic history may be relevant here, for it was through these people that the employment of fasting became a fundamental practice in the hygienic care of the well and the sick.

Dr. Isaac Jennings was born in Fairfield, Connecticut, in 1788, and after many years of conventional medical practice, he made an enlightened discovery. That was in the year 1822 when his ideas as a result of his experiences and observations radically changed and he came to the sudden conviction that "medicine is a gross delusion from beginning to end." He developed and taught a philosophy which he called "Orthopathy," which he claimed expressed his conception of the essential nature of disease. Dr. Jennings lies at the beginning of a new movement, a health reform movement, which took place not only in the United States but also in Western Europe. It was subsequently absorbed into the hygienic system. One of Dr. Jennings converts was Dr. William Alcott from Boston, a second cousin of Louisa May Alcott who wrote the classic novel *Little Women*.

Dr. Alcott was a prolific writer and expounded the principles of diet reform, vegetarianism, and other

major ingredients of the health revolution.

Dr. Thomas Low Nichols and his wife, Mary Gove, were influenced by the reformatory and inspiring lectures and teachings of Sylvester Graham, a preacher of the early nineteenth century who based his health reform principles on basic physiology.

Dr. Nichols and his wife became avid supporters of the hygienic movement and its practices.

In the mid-nineteenth century a magazine entitled *The Laws of Life* was edited by Dr. Harriet Austin who was among the first four women to graduate in medicine in the United States. She was associated with another famous hygienist, Dr. James C. Jackson. Both of these fine practitioners were enthusiasts of hygiene and especially fasting, and Dr. Austin herself was vigorously active in women's reform movements.

Another contemporary was Dr. Susanna Way Dodds, and these two women brought about a great deal of health reform in the latter part of the nineteenth century.

Dr. Dodds actually established a major college in St. Louis, Missouri, in 1887, and she wrote extensively on the subject of hygiene.

Among all of these eminent figures arose one man who displayed a remarkable ability for referring arguments back to first principles.

Here, I allude to Dr. Russell Trall, a most prolific writer, who expounded his revolutionary ideas with vigor and clarity. His many books, some of which have been reprinted recently, make vitally important reading for the student of hygiene and fasting.

Among the many hygienists was Dr. Edward Hooker Dewey who was born in Pennsylvania in 1849 and developed a strong advocacy of fasting. He wrote a number of books, one being *The No Breakfast Plan* which introduced the subject of fasting. Even at this time the development of the science of physiology was supporting the employment of fasting.

In this connection, the famous Dr. Beaumont did a lot of useful experimental work on a North American called Alexis St. Martin. This gentleman has sustained a gunshot wound in the abdomen and the lesion was open into the gastric cavity. As a result of this, Beaumont was able to observe the digestion of various foods and the change in the gastric juice constitution under different conditions, and I quote Beaumont.

"In febrile diatheses very little or no gastric juices are secreted, hence the importance of withholding food from the stomach in febrile complaints. It can afford no nourishment, it is actually a source of irritation to that organ, and consequently to the whole system. No solvent can be secreted under the circumstances and food is insoluble in the stomach as lead would be under ordinary circumstances."

Beaumont reports that food had lain in the stomach of Alexis St. Martin from six to fourteen hours unchanged except by decomposition, that is, by fermentation and putrefaction.

Beaumont also made reference to the old adage "feed a cold and starve a fever." Unfortunately, this particular saying has undergone considerable change over the centuries. When it was first uttered, it stated "feed a cold and you will have to starve a fever." This was subsequently shortened which has entirely altered its meaning and implication.

Another illustrious hygienic teacher was Dr. Robert Walter, born in 1841. Like Graham, Trall, and many others, he had the exceptional ability to understanding the law of causality. He practiced in Pennsylvania, possessed a brilliant mind, was a keen thinker, and a careful logician. He made a great contribution to our understanding of health and disease.

Dr. Charles E. Page was born in 1840. He studied medicine during the Civil War and wrote extensively on the subject of hygiene and fasting. He also made valuable literary contributions to numerous magazines as well as extolling the virtues of fasting in the care of children.

In the late days of the nineteenth century a man arrived from Belgium, born in 1845. His name was Dr. Felix Oswald, and among his numerous writings was one book entitled *Fasting, Hydropathy and Exercise* which should be of more than passing interest to any student of the subject.

Dr. John H. Tilden was born in Illinois in 1851. He graduated in medicine in 1872 and wrote extensively on health, disease, diet reform, and numerous procedures and techniques employed in the care of the sick. Among these techniques was fasting. Most of Dr. Tilden's major work and writing took place during the twentieth century, and his magazines and books are full of epigrams and philosophies which depict his clear and penetrating mind. At his clinic in Denver, he regularly employed fasting as a means of care.

An Englishman, Dr. Henry S. Tanner, made fasting somewhat popular. He underwent a number of fasts, the first undertaken in 1877 which I believe lasted for fourteen days. Later Dr. Tanner experimented with a fast of forty days. His experience gave a clear understanding of the need and importance of water during fasting. From the information I have, his initial fast was without water, with rather serious consequences.

Discussing the work of many able men in the twentieth century, we should seriously investigate the work of Lief, Thomson and Shelton. Dr. Stanley Lief traveled from England and was educated in the United States. He returned to Britain around 1912, and throughout his life had extensive experience with fasting, conducting numerous clinics where the procedure was employed. He encouraged and recommended long fasts, but not without competent supervision and had remarkable successes despite strong medical opposition.

Dr. James C. Thomson, a Scotsman, also went to the United States for his education. He returned to Scotland around the same time that Dr. Lief settled in London. He practiced in Edinburgh for many years and later established the famous Kingston Clinic. While an advocate of fasting in the short term and especially in febrile conditions, he was not enthusiastic about long fasts.

Dr. Herbert M. Shelton, the leading American hygienist, has properly had more experience with fasting than any other living authority. He has written a number of books on the subject which are highly recommended, and for many years conducted Dr. Shelton's Health School in San Antonio, Texas, where fasting was the fundamental procedure employed in the hygienic care.

Another prodigious worker for the twentieth century with a wide experience of fasting was Dr. Linda Burfield Hazzard. Her book, The Fasting Cure, is valuable and expresses a wide experience of the subject. Not only was her experience of fasting extensive, but she was thoroughly familiar with the long fast, which demands much more understanding and supervision than those of short duration.

In our consideration of the hygienic movement with special reference to fasting, it would be incomplete and inexcusable not to mention the current hygienists whose knowledge and experience is both wide and detailed.

Dr. William Esser had been in practice for almost fifty years and conducted an institution in Lake Worth, Florida.

Dr. Robert Gross has been active in the movement for several decades and conducts an institutional practice at Hyde Park, New York.

Dr. Gerald Benesh, who has now retired, was for many years vigorously active in both Cleveland, Ohio, and later in Southern California. Today, in the Cleveland area, Dr. David Scott operates an extensive practice employing fasting as a basis for hygienic care.

As a result of the urgent need to exploit the experience and knowledge of a number of unique individual professionals, in 1978 an organization was established—The International Association of Professional Natural Hygienists. This comprises professionals who have specialized knowledge of the value and employment of fasting. They are familiar with its processes and they are competent to conduct fasts in all states of health and disease where indicated. A list of members of this singularly important

organization is available upon request.

3. Why We Should Fast

Fasting represents a physiological rest and to make this point more lucid, we may look at the process of bio-energetics. When we consume food, the initial process is of ingestion, the placing of food into the mouth. This is followed by the process of mastication and swallowing as the food initially prepared within the oral cavity departs for the stomach where it is once again acted upon by the mechanical pressures of the muscular contractions of the stomach wall combined with the chemical effect of the secreted products referred to as gastric juice.

After a period of time ranging from one to several hours, the food is then actively transported into the duodenum where it undergoes further mechanical and chemical processing before it traverses the canal to a point where it may be absorbed—a process referred to as "active transport."

Whatever remains behind travels through the tract to the bowel and is expelled. The nutrients which have been absorbed are circulated and processed by the liver and other organs. Some may be stored and others directed to the cells for utilization.

If we look closely at this whole process, we will observe that ingestion, mastication, transport, gastric secretion, and mobility, intestinal secretion and activity, bowel action, absorption, circulation, storage, distribution, and final assimilation within the cell are energy expensive processes. Right to the point where the molecules of the nutrients are enzymatically broken down and energy is liberated, right to this point energy has been expended.

We can now see that in fasting-much of this energy does not have to be expended. In fact it is conserved. First, the nutrients are already in the body. Although they may be stored and subject to reconversion, they are nevertheless beyond the point of absorption, and are therefore more easily available to the body with a minimum energy expenditure. At the same time another grand process of the body is elimination. That is, the particular process by which metabolic toxins (by-products of normal bodily processes) are eliminated from the body.

As you have learned, the living organism is constantly producing toxins. These are substances which are the end result of the body's chemical processes, and it is essential that may be removed from the tissues and the blood as rapidly as they are produced. This is the process of elimination which is accomplished largely by the kidneys in producing urine, by the liver in producing bile, by the lungs in exchanging gaseous wastes.

In this total process then, we can argue that fasting represents a physiological rest, in that less energy is required for the utilization of nutrients when fasting than under normal conditions of feeding, and that as a consequence, more energy is available for the restorative and recuperative effort that the body is to make which involves increased elimination among the many processes.

3.1 Accumulation of Waste Products

We must bear in mind that the average person in this country eats far more food than necessary, exercises far less than needed, and rests far too little. All of these changes result in a build-up of unwanted waste material in the body. For instance, consider fat. When a person eats too much fat, the level of fat in the bloodstream becomes elevated. When there is too much fat in the bloodstream, some of it diffuses into the space between the blood vessels and the cells. When there is too much fat in this

space, called the intercellular space, some of the fat diffuses across the cell membrane into the cells.

The result of having too much fat in the bloodstream, too much fat lining the blood vessels, in the intercellular spaces, and inside the cells, is to interfere with normal functioning of the cells. This excess material partially blocks the exit of carbon dioxide and other waste materials from the cells. Poor functioning, called disease, is the inevitable result of this situation. The type of disease depends on the location in the body in which the greatest amount of fat has accumulated.

3.2 Chemical Wastes Commonly Found in Excess

There are many waste materials, excesses, and other toxins that accumulate in and around cells and blood vessels and cause harm. Consider some of the chemicals that are commonly present in the bloodstream, but cause harm when present in excess quantities.

Cholesterol is one problematic substance. A certain amount is needed for normal functioning. Excesses, however, set the stage for heart disease.

Triglycerides are the fats in our diet and bloodstream. When present in normal amounts, there are no problems. However, excesses also contribute to the cause of heart disease.

Uric acid causes harm when its concentration in the bloodstream rises too high. Gout may result when this occurs.

Glucose (blood sugar) is needed for normal functioning. But, when a person is diabetic and the blood glucose level remains abnormally low, much harm will result.

The fact is that any chemical substance, if present in too great an amount in the body, will cause problems, such as cholesterol, but also chemicals which are not normally present, such as cadmium (strictly speaking, this is a metal, not a chemical).

If any food, even protein (it might be more accurate to say especially protein), is eaten in amounts exceeding the body's ability to burn up or eliminate, it will accumulate and cause problems. When a person exercises too little, less food is burned and health problems can thus more easily develop.

Finally, when a person is under too much stress or gets too little rest, the body has little energy to devote to the process of elimination.

3.3 Unimpeded Elimination Essential

Consideration of the subject of fasting brings attention to a major, but usually neglected, area of nutrition and biochemistry—that of elimination. Most nutritionists are only concerned with supplying the body with enough food; they give little attention to the damage brought on by too much food and too little elimination of waste.

Imagine the body's metabolic systems as a funnel. Only a certain amount of food can pass through the small end of the funnel. In the body, this means that only a certain amount of food can be burned by the body to form energy, carbon dioxide, and water; also, the body's eliminative systems (intestines, liver, kidneys, lungs, skin) can only eliminate a limited amount of excess food. Therefore, when too much food is poured into the funnel, there is a backup. First the bloodstream, then the intercellular spaces, then the cells become loaded with excesses. This condition is called tissue constipation and toxemia.

In society, there is a tremendous concern for intestinal constipation. Yet, the scientific research shows that the main cause of discomfort from the intestinal constipation is from the pressure it causes, not from chemical poisoning from the colon. Compare this to the condition of tissue constipation: here we have a build-up of many harmful chemicals to which all our cells and tissues are exposed. Tissue constipation is hundreds of times more damaging than colon constipation.

And this is where fasting enters the picture. While fasting, the body can remove the chemicals

responsible for tissue constipation and toxemia, the very chemicals responsible for a wide variety of diseases.

4. The Body's Innate Wisdom Guides Us During A Fast

When a person is fasting, his heart and lungs and kidneys and other essential organs continue functioning. They must be functioning or death would rapidly ensue. To function, these organs need fuel. While eating, this fuel comes from ingested food, yet this source is obviously not available during a fast. While fasting, all nourishment is supplied from within the body.

Hygienists have long recognized the wisdom behind the functioning of the body. To maintain the blood acid/alkaline balance, or the blood sugar levels, or the body temperature, or the blood pressure level, requires tremendously complicated physiological systems. That the body is able to maintain itself in a steady state, called homeostasis, even when there are great pressures to deviate from this state requires properly functioning mechanisms which are far more complicated than the finest engineer or computer scientist could design.

Yet, there are some scientists who believe that when a person is fasting his body lacks the intelligence and self-protective mechanisms to break down nonessential material within the body first, and thereby spare the essential tissues.

Scientific studies, however, along with the accumulated experiences of 150 years of Hygienic doctors, testifies to the contrary. The body's innate wisdom continues functioning during a fast. The body is well aware of the fact that tissue constipation and toxemia are interfering with its normal functioning.

In fact, even while eating the body is attempting to break down and remove the waste material in and around cells and blood vessels. During a fast, however, this process is greatly accelerated. The body at this time needs to devote no energy to digestion and absorption of food. This energy, therefore, is devoted to elimination of waste.

4.1 Nonessential Matter is Utilized First

Fundamentally, fasting is as simple as this. While fasting, the body breaks down and burns for energy the least essential substances within it first. After a period of weeks (2-6 weeks in the nonobese person), this process is completed. When all waste material and nonessential substances (fat reserves) have been eliminated, the fast is finished. If a person continues not to eat, he will be starving. During this period of time, the body will break down and burn for energy its essential tissues. A doctor can easily tell when a fast ends. The way in which this is done will be discussed in future lessons.

Scientific research has totally confirmed this metabolic scenario. When the average person begins to fast, the body initially will burn for energy the glycogen which has built up in the liver and muscles.

This glycogen, formed from blood sugar (glucose), is present in only small quantities. Once the glycogen stores are exhausted, which occurs in just a few days, the body will burn mainly fat, a non-essential reserve material which has accumulated not only in the thighs and buttocks but in and around every cell and blood vessel in the body. After the fat is gone, the body will begin to burn the protein which is in excess.

4.2 The Body Conserves Its Vital Organs

For many years, scientists believed that the brain could only live on blood sugar. This is important in the discussion of fasting for the following reasons. First, the brain usually burns 20% of the body's blood sugar; it is, therefore, a major consumer of energy materials. Second, if it can only live on blood sugar, this must be supplied to it while fasting. Third, while fasting, after the glycogen stores are used up, the only source of sugar is from breakdown of protein. Fourth, if protein is used to supply the brain with sugar from the beginning of a fast, there must be a tremendous breakdown of liver muscle to feed the brain. And fifth, if this occurs, fasting for over a few days will be exceedingly dangerous.

It is for this reason that scientists criticized fasting prior to 15 years ago. But about 15 years ago, scientists found that during a fast the brain will undergo metabolic conversions so that it can burn fat. This spares blood sugar, which in turn spares body protein (mainly muscle and liver), which in turn vastly prolongs the amount of time during which a person can safely fast.

For 135 years, Hygienic doctors had claimed that the average person can safely fast for about 2-6 weeks with little or no loss of essential tissue. In the last 15 years, conventional nutritional scientists have finally come to adopt this view. But beware of those doctors and researchers who have not read a textbook or scientific journal published in the last 15 years; they will still say that the brain can only live on sugar and that fasting is therefore dangerous! You would be surprised to know how many doctors are not aware of the research which as been published in the last 15 years.

5. What The Body Does When You Fast

So, what does the body do when you fast? Dr. Shelton lists four main activities.

1. Breakdown of body fat, thereby leading to rapid weight loss. This is beneficial because excess body fat increases the risk of heart disease, strokes, cancer, diabetes, arthritis, and many other diseases. Fasting is the "fastest" way to lose weight.
2. Diversion of energy from digestive processes to other tissues where needed for repair and rejuvenation. Dr. Shelton explains that "if you have the water running in your bathtub and somebody turns on the water in the kitchen sink, the rate of flow into the bathtub is immediately diminished. When the water in the kitchen is cut off, the rate of flow into the bathtub is immediately increased."
   When digestion is suspended for a period of time by fasting, far less blood flows to the digestive organs. This blood is then free to flow to other tissues in the body, bringing with it essential oxygen and other nutrients which are needed for healing. This extra blood also serves as the vehicle in which wastes can be carried away.
3. Physiological rest is secured. We all know the importance of rest after a hard day's work. At night, we fall into bed exhausted. If we do not secure a good night's rest, we will function poorly the following day. Our internal organs need rest also, yet we almost never give them rest since we eat every few hours every day. By fasting, an opportunity for complete rest is given, and the internal organs thereby are able to rebuild their strength.
4. Fast to eliminate wastes. Again quoting Dr. Shelton: "Nothing known to man equals the fast as a means of increasing the elimination of waste from the blood and tissues. Only a brief period elapses after food is withheld until the organs of elimination increase their activities and a real physiological housecleaning is instituted."

5.1 Cholesterol Deposits Break Down

In regard to elimination of wastes, consider the situation with cholesterol. Most of the cholesterol stored within the body is lining the blood vessels, setting the stage for a heart attack or stroke. While fasting, a person is obviously ingesting no cholesterol in food. Therefore, there is no added dietary cholesterol entering the bloodstream. Yet, blood tests show that the level of cholesterol commonly goes up during the first 7-10 days of a fast, then decreases afterwards. Where is this cholesterol coming from? Scientists believe the source is deposits of cholesterol in the blood vessels. The body, in an effort to cleanse its blood vessels, breaks down the deposits of cholesterol in the blood vessels and liberates it. This cholesterol is either used (to build new cell membranes, to form adrenal hormones, or other such functions) or eliminated by the liver in the bile. This is an excellent example of the body's accelerated elimination during a fast.

5.2 Fibrinolysis

Another body function that increases during a fast is fibrinolysis. Clots in the bloodstream are usually covered by a meshwork much like a spider's web called fibrin. These clots are extremely dangerous: if one lodges in a small blood vessel in the lungs, the blood supply to that part of the lung will be obstructed and part of the lung may die. The clot is called a pulmonary (for lung) embolism (traveling clot). The process is called pulmonary infarction (death of part of the lung).

While fasting, the body's ability to dissolve clots is greatly increased. This process, called fibrinolysis, does not permit such problems as pulmonary embolism and is part of the body's effort at healing such problems as thrombophlebitis (inflamed veins, usually in the legs, where clots often form and break loose to travel to the lungs).

5.3 Autolysis is Accelerated

Also during fasting, the process of autolysis is accelerated. Each cell in the body contains the seeds of its own destruction. When the need presents, itself, the cell will release its own self-destructive enzymes and self-destruct. This is autolysis. As stated earlier, the body will break down and burn nonessential substances first for energy while fasting. One source of nonessential material is diseased tissue such as benign tumors (fibroid tumors of the uterus are a good example). During the fast, the process of autolysis leads to the breakdown of this type of tissue which has hampered normal functioning.

5.4 Increased Diuresis

An important body activity during a fast is greatly increased diuresis. Diuresis is the excretion by the kidneys of salt and water. Medical doctors give diuretic drugs to high blood pressure patients in order to decrease the amount of salt and water in the body, which will then result in lower blood pressure. Diuretic drugs, however, damage body tissues. While fasting, the body spontaneously and automatically eliminates salt and water without damaging body tissues. This diuresis is of tremendous health benefit.

5.5 Phagocytosis Is Accelerated

The list could go on forever. While fasting, the ability of the body's defensive army of white blood cells to destroy virulent bacteria and digest waste material is accelerated. An experiment compared the ability of these cells to destroy virulent bacteria when taken from the bloodstream of someone who had been eating, versus cells from someone who had been eating, versus cells from someone who had fasted for a few days. The white blood cells from the fasting person were significantly more effective at killing virulent bacteria.

6. Juice Dieting Vs. Fasting

There are some people who advocate juice dieting over true fasting, saying that it is safer and healthier. We can dismiss the safety claim, since true fasting is safe if done the proper way under experienced supervision. We can also dismiss the claims regarding health. (While it is true that much less energy is expended when a person is on a juice diet than when they are eating solid food, however, when no food is taken at all (solid or liquid), the conservation of energy is greatest and the healing potential is therefore also greatest.—ed.). Therefore, we have objective evidence that there are more health benefits from water fasting than from juice dieting.

The general conclusion is that while fasting, the body's healing and repairing and rejuvenating and eliminating powers have more energy and resources to do their work effectively, efficiently, and rapidly.

7. What A Fast Cannot do

But can a fast do everything? Can a fast heal any health problems? First of all, let's consider the implications of this mistaken terminology which is in widespread use.

A fast does nothing! A fast only provides a condition during which the body can effectively build its health. Don't think of the fast as an independent actor with a life of its own. This is a carry-over from mistaken medical thinking which claims that drugs act on the body. Drugs do not act in the body. They are inert and lifeless! In fact, the body acts on the drugs. The one and only actor at all times, in health and disease, regardless of diet or drug, is the body. This is totally the case while fasting. The body acts, not the fast. The fast only provides the proper condition.

So, instead of asking "what can a fast not do," we must ask what can the body not do while fasting. The body does not have unlimited powers of healing. As the lifespan progresses, the powers of healing diminish. An adult, for instance, can only rarely display the physiological vigor seen in an infant in regard to fever. A fever is a defensive measure intelligently initiated by the body. When the body raises its temperatures to higher levels, greater amounts of waste are burned up. An infant's healing power is so vigorous that it can raise the temperature to high levels in a short time. Yet an adult, whose healing powers are relatively weaker, cannot mount such an intense defensive action. An adult's fever rarely reaches the height seen in an infant.

The limited ability of the body to heal itself determines the extent of healing during a fast. This power of healing is far greater than most people realize, so it could be a grave error to decide, without consulting a Hygienic doctor, that there is no hope in any individual case. Yet it is equally erroneous to indulge in inane optimism and claim that the body is capable of healing and resolving any problem during a fast. Totally destroyed tissue in a joint, as seen in very advanced cases of arthritis, can usually not be reconstituted even under the best conditions as provided by a fast. Hygienists have found that the body is not usually able to destroy malignant tumors while fasting, nor can it rebuild the "insulation" around nerves that has been destroyed in multiple sclerosis.

But the happy truth is that the vast majority of human illnesses can be helped by fasting. Fasting, in fact, provides the best opportunity for the body to heal itself. Yet the body does not have unlimited powers of self-repair. An experienced professional Hygienic doctor is able to judge in any individual case what the prospects are for recovery.

In future lessons, we will discuss the specifics of which conditions are helped by fasting; all the aspects of managing a fast; how to break a fast; and how to live after a fast.

8. Questions & Answers

What is the difference between fasting and starving?

People who are ignorant of the subject say there is no difference. In fact, there is a large difference. Fasting is the period of time during which a person is ingesting no food, but is living off of nonessential reserve material inside his body. Starvation begins when all non-essential reserve material has been used up, and the body must therefore begin to break down and burn for energy essential tissues.

What does a fast do?

A fast does nothing. A fast only provides a condition in which the body can more rapidly and effectively heal and normalize itself.

Is there very much scientific research on fasting?

Yes. From the early 20th century up to the present time, a tremendous amount of research has been done on fasting. Many papers have been published in the finest scientific journals. Scientists have a profound understanding of the biochemistry, physiology, and metabolism of fasting.

Why do many people say that fasting is not safe?

Mainly because it is emotionally objectionable to go without food, since food means love and comfort and security to most people. Also because it was not proven until recently that the body will spare its protein reserves and burn mainly fat during a fast; this makes fasting essentially safe for most people.

Why consider fasting?

Because most people overeat, get too little exercise and rest, and are generally not mentally at peace, we get a build-up of toxins and waste material in the body. When a person fasts, the body will break down this material and either burn it for energy, or eliminate it. Also, during a fast, the body increases the level of repair activity, secures a complete rest, and rapidly loses weight.

Isn't it better to go on a juice diet than fast totally?

No, water fasting (going on water alone) is far superior to juice dieting. For one thing, the elimination of salt from the body which occurs so rapidly while fasting and results in health improvement will not occur at all while on juices. Don't think of juice dieting as fasting. While on juices, a person ingests large amounts of calories, vitamins, minerals, and other nutrients.

Can every disease be "cured" by fasting?

No. Remember, fasting is not a "cure." Fasting only provides the optimal condition for self-repair. This process of self-repair has its limitations also, depending on the case.

Article #1: Living Without Eating by Dr. Herbert M. Shelton

In March, 1963, newspapers around the world described the almost incredible story of the seven weeks deprivation of food and the survival of Ralph Flores, a forty-two-year-old pilot of San Bruno, California, and twenty-one-year-old Helen Klaben, a co-ed of Brooklyn, New York, following a plane crash on a mountain side in Northern British Columbia. The couple was rescued March 25, 1963, after forty-nine days in the wilderness in the dead of winter, over thirty days of this time without any food at all.

By means of a fire, a lean-to and heavy clothes in which they wrapped themselves, they managed to withstand the bitter cold. During the first four days after the crash, Helen Klaben ate four tins of sardines, two tins of fruit, and some crackers. Twenty days after the crash, the pair took their last "food"—two tubes of toothpaste. Melted snow became their diet, for breakfast, lunch, and the evening meal. "For the last six weeks," she explained, "we lived on water. We drank it three ways: hot, cold and boiled." Varying it in this way helped reduce the monotony of their single item menu of snow.

Miss Klaben who was "pleasing plump" at the time of the plane crash, was happily surprised, at the ordeal's end, to learn that her weight loss totalled thirty pounds.

Flores, who was more active during their enforced fast, had lost forty pounds. Physicians who examined them after the rescue, found them to be in "remarkably good" condition.

Many thousands of men and women have gone without food for much longer periods, not only without harm, but with positive benefits. Periods of abstinence under such taxing conditions as the ones these two people endured and survived are extremely rare.

One of Sweden's distinguished biochemists, Dr. Ragnar Berg, a Nobel Prize winner and an authority on nutrition, says, "One can fast a long time, we know of fasts of over a hundred days duration, so we have no need of fearing that we will die of hunger."

The actual time period of abstinence forced upon Mr. Flores and Miss Klaben was of relatively moderate duration. The question is not how long man can fast, but what are the provisions of nature that enable him to do so.

Wear and waste, repair and replenishment, are continuous and almost simultaneous processes in all living structures, and none of these processes halt during a fast. The hibernating animal in the far north must produce sufficient heat to maintain body warmth. Both man and animal, while fasting, must breathe and the heart must continue to pulsate. The blood must continue to flow and the organs of elimination must continue their work of freeing the tissues of waste. The vital functions of life must be carried on, even if at a slightly reduced rate. Cells must be replenished, wounds must be healed. All of this, as I know from years of observations, goes on during a fast.

All manifestations of life—movement, secretion, digestion, and similar processes—depend upon the use of the materials of the body. If an organ is to work, it must be supplied with the materials with which to work. In the absence of fresh supplies with which to replace those that have been used up, the organ wastes and weakens. If life is to continue, a basic irreducible level of activity is imperative. Even the hibernating animal, with activities reduced to a bare minimum consistent with continued life, must

breathe and the heart must pulsate.

An understanding of the process by which the body nourishes its vital tissues and sustains its essential functions during prolonged abstinence, and the sources upon which it draws, will help us understand how the body can survive periods when outside food is not available or cannot be digested.

The normal body provides itself with a store of nutritive materials that are put away in the form of fat, bone marrow, glycogen, muscle juices, lacteal fluids, minerals and vitamins. Always the healthy body maintains in store adequate nutritive reserves to tide it over several days, weeks, or even over two or three months of lack of food. This remains true whether fasting is enforced, as in the case of a plane crash or of entombed miners, or is brought on by illness where one cannot swallow or digest food, or by free choice as in voluntary fasting to lose weight. When food is not taken, the body draws upon its reserves with which to nourish its functioning tissues. As this reserve is used up, weight is lost.

Basic in the fasting process is the fact that our "built-in pantries" contain sufficient nutriment to hold out, in most instances, for prolonged periods, especially if they are conserved and not wasted. In the blood and lymph, in the bones and especially in the marrow of the bones, in the fat of the body, in the liver and other glands and even in the individual cells that make up the body, are stores of protein, fat, sugar, minerals, and vitamins which may be drawn upon during periods of scarcity or when food is not usable.

Neither animal nor man can survive prolonged abstinence from food unless he carries within himself a store of reserve food on which the body can call in emergencies. The fasting organism will not be harmed by abstinence so long as the stored reserves are adequate to meet the nutritive requirements of its functioning tissues. Even thin individuals carry a reserve of food in their tissues, to tide them over periods of abstinence. These people too, may safely fast for varying periods.

By a process known technically as autolysis, achieved by enzymes in the tissues, these stored reserves are made available for use by the vital tissues to which they are carried by the blood and lymph as required. Glycogen or animal starch stored in the liver is converted to sugar and distributed, as needed, to the tissues. It is significant that, even in prolonged fasts, no beriberi, pellagra, rickets, scurvy or other "deficiency disease" ever develops, thus showing that the reserves of the body are generally well balanced.

Fasting has been shown to improve rickets and calcium metabolism. In anemia, the number of red blood cells are increased during a fast. I have observed benefits in pellagra during a fast. The biochemical balance may be maintained and even restored while fasting. It is important to know this, for if it were not so, the fast would prove to be deleterious.

Numerous animal experiments have shown that underfeeding, as contrasted with overfeeding, tends to prolong life and to provide for better health. Other experiments involving fasting rather than underfeeding, have shown that fasting not only prolongs life, but results in a marked degree of regeneration and rejuvenation.

Thousands of observations of both man and animals have established the fact that when the physical organism goes without food, the tissues are called upon in the inverse order of their importance to the organism. Thus fat is the first tissue to go. The stored reserves are used up before any of the functioning tissues of the body are called upon to supply nutrients for the more vital tissues such as the brain and nerves or the heart and lungs. As it feels among its supplies for proteins, sugars, fats, minerals, and vitamins, and redistributes, utilizes, and conserves these stores, the fasting organism exercises an ingenuity that seems almost superhuman.

The aggregate of tissues of the organism may be regarded as a reservoir of nutriment which it may call in any direction or to any part as needed. But these tissues are not sacrificed indiscriminately. On the contrary, wastage of those organs that are primarily essential to life is repaired by withdrawal from less essential organs of materials required by the more important ones. Many of the necessary nutritive constituents, and this is especially true of certain minerals, are vigorously retained.

Studies made on men and animals to determine losses of various tissues and organs in prolonged abstinence from food have almost all been made on organisms that have died of starvation. Starvation and fasting are two totally different stages of abstinence. It should be quite obvious that the extreme losses seen at the starvation stage of abstinence are far greater than they are in a fast of reasonable length. Extreme weight losses are not experienced in any normal fast. Where they occur, the fast should be broken.

One must differentiate between fasting and starving. To fast is to abstain from food while one possesses adequate reserves to nourish his vital tissues; to starve is to abstain from food after his reserves have been exhausted so that vital tissues are sacrificed. We are not left unwarned as to when the reserves are nearing exhaustion. Hunger returns with an intensity that drives one to seek food, although during the fast proper, there is no desire for food. This differentation between fasting and starving should help to dispel any notion that starvation sets in with the omission of the first meal.

Contrary to popular and even professional opinion, the vital tissues of a fasting organism, those tissues doing the actual work of life, do not begin to break down the instant a fast is instituted. The fasting body does lose weight, but this loss, for an extended period, is one of reserves and not of organized tissues.

The efficiency of the living organism in regulating the expenditure of its resources during a fast is one of the marvels of life.

In periods of abstinence, the less important organs of the human being, although they waste consequent upon the withdrawal of substance from them with which to nourish the more vital tissues, do not undergo degeneration until the starvation phase of the period of abstinence is reached. The atrophy of muscles may be no greater than that seen to occur from a lengthy period of physical inactivity, while there is no loss of muscle cells. The cells grow smaller and the fat is removed from the muscles, but the muscle retains its integrity and a surprising amount of strength.

Loss of weight varies according to the character and quality of the tissues of the individual, the amount of physical and emotional activity engaged in, and the temperature surrounding the faster. Physical activity, emotional stress, and cold and poor tissues all provide for more rapid loss. Fat is lost faster than any of the other tissues of the body.

Bodily condition is, perhaps, the chief determiner of how long one may safely fast. In the case of the two who survived the plane crash, and went four weeks without food, for example, they had snow which is water and this kept them from the danger of dehydration. They could live without food; the lack of water would have been fatal. Voluntary or involuntary, the faster must have water.

It is clear then that fasting must be carried out intelligently, with proper precaution, and with common sense.

Precisely as a novice swimmer would seek expert guidance and advice before starting on a long swim, so the inexperienced faster must obtain reliable guidance as a precautionary measure before launching upon a fast of any extended duration.

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Article #2: Fasting In Nature by Dr. Alec Burton

When we closely examine the animal world we discover that fasting is almost as common as feeding.

But aside from fasting per se there are two similar conditions which are related to our subject. They are hibernation and aestivation.

It is a universal verity that animals have some means of adaptation to food scarcity. Obvious examples of this are squirrels storing nuts, bees, storing honey, chipmunks storing roots and nuts, beavers storing twigs, and finally other animals capable of storing significant food reserves within themselves. These are the animals which hibernate. They undergo a period of winter sleep. Their metabolism is slowed down and they take no food for long periods of time. Bats, mice, hedgehogs, woodchucks, toads, lizards, snakes, flies, wasps, bees, bears, crocodiles, and alligators are among those that undergo some degree of hibernation. True hibernation is a dormant state of existence accompanied by great diminution of respiration, circulation, and metabolism. At this time, the animals' functions are almost suspended. Body heat is little. Action of the heart is almost imperceptible, and as much as 40% of the animal's total weight may be exhausted by the time it recommences feeding.

True hibernation is restricted to only a few animals: hedgehog, doormouse, marmot, and bat. This is a state where most of the essential vital functions continue at a very low level or degree. They are referred to by biologists as "imperfectly warm blooded types," which are unable to produce enough heat to make good their losses in cold weather. It is probable that the biologists' conception is inaccurate because in a number of species it is only the female that hibernates, which would suggest that it is food scarcity rather than temperature that precipitates hibernation.

Conversely, aestivation is a similar process which occurs in the summer time, and quite obviously these are not cold blooded animals. An example is the tenree of Madagascar. This climatic dormancy requires that the organism makes a variety of gradual physiological and biochemical adjustments that apparently correlate with temperature, light, and food scarcity.

Different hibernators adapt to different sets of conditions. Some store food, others do not. Some accumulate a great deal of fat and food reserves, others do not. However, there is a general preparation for the period of hibernation. An increase in fat deposition and adjustments of body temperature or what appears to be a "resetting" of the body thermostat are common. Metabolism adjusts, the heart and cardiovascular system show generally lower levels of activity.

A number of biochemical changes associated with the nutritional adaptation are evident. There is an increase of the element magnesium in the blood and the endocrine glands reduce their activity. This is especially so of the gonads. It is generally agreed among experts and observers that hibernation follows normal sleep. In other words the state is entered via sleep.

If, however, hibernation is to be looked upon as a type of sleep, it is an extremely complex one. But one factor which is dominant is energy conservation. All the adapted devices conserve the energy of the organism concerned.

One extremely interesting feature of hibernation which is of particular interest to us in our studies of fasting is the apparent improvement of health experienced by hibernating animals. According to observers, they do not develop "infectious" diseases. They are said "to have a greater resistance to disease," or at least some of its causes. It is claimed that the host's defensive mechanisms against parasites and their proliferation is substantially increased, it has also been demonstrated that the hibernating organism is more resistant to radiation and especially are the tissues rejuvenated and more capable of healing following the period of hibernation. Hibernation is in many ways an important survival mechanism.

As I mentioned earlier, hibernation and aestivation are interesting examples in our quest for understanding the biology of fasting; but as it is not possible for man to significantly reduce his physiological and metabolic processes, we cannot extrapolate from the lower mammals to man knowledge which is gained in this way.

It need hardly be said that the living organism requires materials with which to work. It requires nutrients to fuel its biological processes. It requires nutrients as a source of energy and to provide the

needed materials for the repair of wear and tear, for healing or regeneration, and for reproduction. It also requires a variety of other essential substances, minerals and vitamins, which are necessary for the regulation of the body's processes. Simply stated, it is not possible for an organism to survive without nutrients.

Professor Morgulis states that during a fast, an organism is living off the fat of the land. The Gila monster, a large lizard of the southwestern desert in Mexico, in fact a poisonous reptile, has a conspicuously large heavy tail. This is a source of nutrients in times of food scarcity and it is well known that the lizard is capable of going for extended periods of time without food. In one observation, one fasted in excess of two months.

It is commonly thought by people that the camel, having a large hump, is capable of travelling long distances without water. It is more true that the camel is capable because of its hump of going for long periods of time without food. The fat-tail sheep of Iran has an enormous reserve of nutrients available to it during times of scarcity. During periods of abundance, it stores food in the tail which is utilized when scarcity prevails.

As we would expect, there are many and diverse differences among the different species of animals so far as fasting and stored food reserves are concerned.

As we have seen, some animals hibernate—they are inactive for long periods, perhaps six or seven months. Conversely, there are animals that engage in vigorous physical activity while fasting. The Alaskan fur seal bull and the salmon are common examples. The fur seal engages in tremendous and relentless sexual activity over a period of twenty to thirty days during which it takes no food. During their long upstream swim salmon do not take food. It is also claimed that whales are capable of abstaining from food for long periods of time.

Professor Morgulis states in his book, *Fasting and Under Nutrition* that "active growth and regeneration are not incompatible with inanition and the wear and tear at least in some organisms is so completely repaired as to evade for a long time the effect of nutritional stringency. Inanition does not preclude the ability for extreme and sustained exertion."

It should be stressed that so far as our own discussion is concerned, we are advocating fasting as a means of physiological rest and this should be associated with physical, mental, emotional, and sensory rest so far as practicable.

One of the most unusual and fascinating examples of fasting is that it takes place during metamorphosis which represents a complete change of form during the life of an insect or other living creature. A good example of this is the tadpole during its period of transformation to a frog. It does not shed its tail, the tail contains nutrients; proteins, carbohydrates, fats, minerals, and vitamins. It is a source of nourishment for the changing organism.

We observe the process of "autolysis" which is the breakdown of stored nutritional reserves by the inter and intracellular enzymes. The nutrients are not usuable as glycogen, fat, protein, etc. They must first be digested inside and thus supply the changing organism with basic materials to develop its new form. We will observe in this that the process of "autolysis" is a rigidly controlled series of events. The developing frog does not suddenly lose one of its newly formed legs or part of an eye. It only breaks down the needless tail.

Another example of this important biological process, which in life is going on all the lime, is the common aspect of healing with the absorption of a ring of calus, which temporarily supports a fracture, when a bone has sustained an injury. By this remarkable process, this supporting ring is slowly removed. We see evidence of the same thing where congestive deposits surround a lesion, cut, or surface on the body—how these are rapidly broken down and removed. There are literally thousands of examples of fasting in nature, and it is indeed almost as common as feeding.